

Yudzuru OGURA* : A fossil wood of *Castanopsis*-type
from the Tertiary of Nagano Prefecture.**

小倉 謙 : 長野縣第三紀産クリガン型の化石材

The writer has received a small piece of a silicified wood, about 10 cm. in diameter and 30 cm. in length, from the Tertiary of Nagano Prefecture. Though the preservation is not very well, it is enough to investigate its internal structure. This wood shows a very distinct ring-porous structure comparable with that of *Castanopsis* of the Fagaceae, as shown in the following description.

***Castanopsis Makinoi* Ogura, sp. n.**

Diagnosis : A fossil wood showing dicotyledonous structure. Annual rings distinct, broad. Ring-porous ; large vessels in early wood in four or five radial rows; small vessels, gradually becoming smaller toward late wood, arranged radially or diagonally in two or three tangential rows. Large vessels, circular or slightly elliptical in cross section, 300—350 μ in diameter, 400—500 μ in length, do not touch each other ; filled with thin-walled tyloses. Small vessels circular or nearly circular in cross section, 50—100 μ in diameter, solitarily or two or three of them contact with each other. Perforation simple ; lateral wall with small bordered pits arranged roughly and irregularly. Wood-parenchyma, 20 μ in average diameter, arranged mostly around vessels, few in other parts. Chambered parenchyma distributed abundantly throughout. Tracheids and wood-fibers similar in shape. Rays always fine, uniseriate ; 2—18 cells, mostly 1—14 cells, in height ; walls in contact with vessels with simple elliptical pits, horizontally elongated.

Locality : From the Tertiary tuff at Amorimura, near Nagano City, Nagano Prefecture. Type in the Botanical Institute, Faculty of Science, University of Tokyo.

Affinities : The general structure of the wood, especially the mode of arrangement of vessels is comparable with that of *Castanea*, *Castanopsis* or *Lithocarpus* of the Fagaceae. The species belonging to these genera are similar with each other, not only in their external characters but also in their anatomical structure. Their woods are characterized by the ring-porous form, provided with small vessels arranged radially, fine rays consisting of one row, and wood-parenchyma arranged a-

* Botanical Institute, Faculty of Science, University of Tokyo, Tokyo.

** Contributions from the Division of Plant-Morphology and of Genetics, Botanical Institute, Faculty of Science, University of Tokyo, No. 326.

round the vessels and more or less tangentially in the late wood. In these characters, these genera cannot be distinguished from each other. In other structure, it seems that they have their own special characters, but it is not always the case. For example, the rays in *Castanea* are always fine and uniseriate, and those in *Litho-*

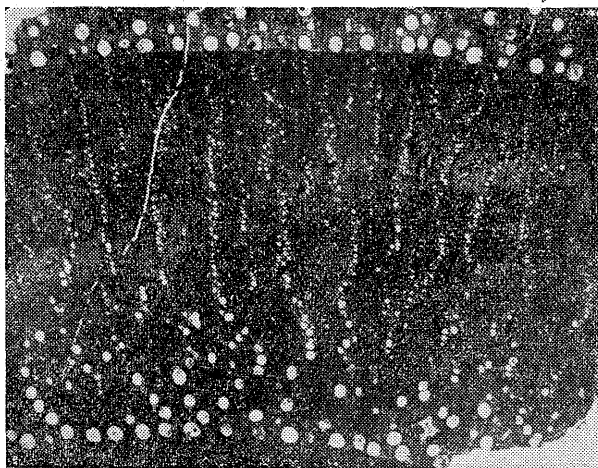


Fig. 1. Cross section, showing the arrangement of vessels. ($\times 8$).

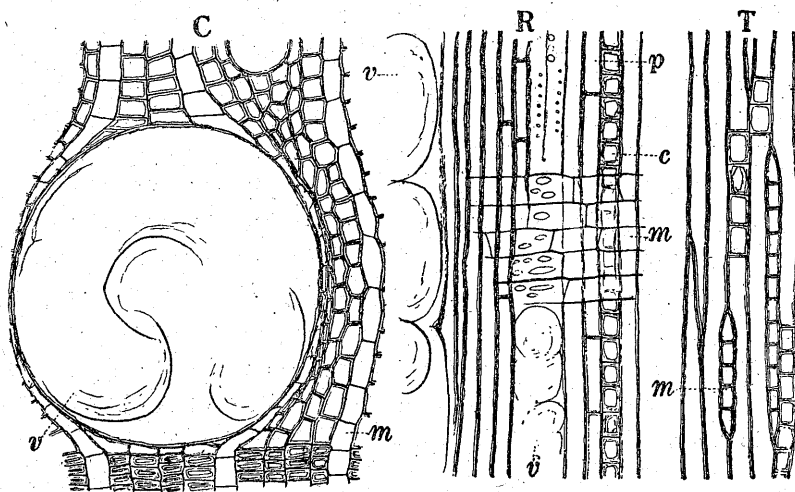


Fig. 2. C. cross section, R. radial section, T. tangential section: v. vessels with tyloses, m. medullary ray, p. wood-parenchyma, c. chambered parenchyma. ($\times 160$).

carpus are provided also with the broad and multiseriate ones, while in *Castanopsis* the rays in some species (e. g. *C. Kawakamii*, *C. formosana*, *C. subacuminata*) show only the uniseriate but some others (e. g. *C. taiwanica*) show the uniseriate, as well as the multiseriate. The similar relation is to be found in the chambered parenchyma; they are present in *Castanopsis* and absent in *Castanea* generally, but some of the former (e. g. *C. Kawakamii*) have none of them.¹⁾ These facts show that there are no distinct characters which discriminate these genera from each other. It is therefore difficult to determine the affinity of the present fossil wood accurately, but the general characters, especially the presence of the chambered parenchyma, are mostly familiar with *Castanopsis*. These cells are very characteristic, occurring abundantly and arranged longitudinally in a single row, showing that they are derived from a long fibrous cell by transverse septation. The fibrous cell in which a few chambered parenchymatous cells are partially included is not rare. The wall of these cells is thick, and in some cases a large polygonal space is to be found within the cell, suggesting that it may be a crystal-including cell.

The genus *Castanopsis* consists of more or less thirty species, mostly found in South China, Malaya, East Indies and India, and a few on the Pacific coast of North America. They are not found in Japan proper. The anatomical structure of these species was studied only in a few²⁾, and the writer cannot compare the present fossil with all living species, but it seems that the tangentially arranged wood-parenchyma, which is one of the characteristics of the living species, is rare in its occurrence, while the occurrence of the chambered parenchyma, another characteristic of the genus, is more numerous than the living species. The fossil wood described by Schönfeld as *Castanopsis* sp.³⁾ cannot be compared with the present one, as the description is not complete. The present fossil wood seems therefore to be different from the woods of the recent and fossil species of *Castanopsis* ever known, and the writer intends to name it provisionally as *Castanopsis Makinoi*, dedicating to Dr. T. Makino, in commemoration of his 88 th. birthday.

1) Kanehira : Anatomical characters and identification of Formosan wood. 1921.

2) Kanehira: l. c.; Anatomical structure and identification of important woods of Japanese Empire. 1926. Brown & Panshin : Identification of the commercial timbers of the United States. 1934. Record : Identification of the timbers of temperate North America. 1934. Jongmanns : Mikrographie des Holzes der auf Java vorkommenden Baumarten. 6. 1936.

3) Schönfeld : Ber. Freib. Geol. Ges. 10. 1925.

筆者は曾て八木貞助氏から、長野市附近に産した一化石材の標本を送られその鑑定を乞はれた。その標本は外観的に余り見事なものではないが、薄片を作つて見ると比較的保存がよく顕微鏡的観察が出来る程度であつたので、多数の薄片を檢鏡の結果、クリガシ属の材と鑑定するに至つた。

「即ち環孔材の一種で、大導管が春材に数列あり、これに続く小導管は放射的に排列し、射出髓は一列で細く、その導管との接面にはレンズ形の膜孔が横はる。柔細胞は導管の周に多いが他の部には比較的尠く、仮導管と木部繊維とは余りよく区別し得ない。尙纖維狀細胞が短く区劃されて立方体形をなす所謂多室細胞が可成り多く見られ、中には原細胞の局部に二三の細胞がこの状態に隔膜されてゐることもあり、その成因を知るに都合よい。

クリガシ属は南支那から東印度諸島、印度に亘り産し、尙二三北米の太平洋岸にも産し、外観も内部構造もクリ属や *Lithocarpus* に類し、互に区別し難い程であるが、この化石材はクリガシ属に最も類似するものと認め、牧野博士米壽を記念して *Castanopsis Makinoi* と命名したい。

長野縣上水内郡安茂里村小市犀沢山の第三紀凝灰岩中から 曾て金子俊司氏（当時 長野中学校生徒）の採集したものである。

○臺灣採集の思い出 “私が台湾へ行つたのは明治 29 年であつた。丁度所屬の変つた直後のことではあり、感じも外國の様であつたし、それにベストが流行していたので何となくいやなところだと思つた。基隆に上陸して、台北に行く途中で、患者の家の廻りを縄でとり巻いてあつたのを思い出す。台北には城門などもあつて、昔の通りであつた。その時、大稻埕(タイトウテイ)に溝が流れていて、そこでコナウキクサ (*Wolffia*) を採つた。その標本は東大の標本室に今もある筈だが、これが *Wolffia* を日本人が採集した最初である。

山へ行きたかつたが、未だ入ることが出来なかつたから、主に道傍で採集をしたのであつた。治安もよくなかつた関係もあるが、又金が足りなかつたことも事実で、旅費として 3 人で 200 円しかなかつた。3 人というのは小石川植物園の園丁をしていた内山富次郎君と、大学にいた大渡忠太郎君と、そして私の 3 人であつたが、基隆へつく迄にもう準備に半分の 100 円を使つてしまつたから心細かつた。それでこの少ない金でどう旅行しようかということで、基隆で大渡と喧嘩別れになつてしまい、私は内山と二人で台北に残つたが、大渡は打狗へ出掛けて行つた。初めてタカサゴユリを採つたことやツウダツボクの見事な出来に驚いたことや、基隆で綠色した毒蛇を打殺して多田綱介にやつた事などをおぼえている。”

(牧野先生一夕話 I—文責在編輯)